

Copper Antifouling Paint Sub-Workgroup 5/13/04 Meeting Notes

In-Person Participants:

Acosta, Vic, DPR
August, Mike, Dept. of Parks & Rec.
Edwards, Diane, SWRCB
Goff, Gina, DBW
Lee, G. Fred, G. Fred Lee & Associates
Reid, Mike, SWRCB
Singhasemanon, Nan, DPR
Ward, Kim, SWRCB

Phone Participants:

Arias, Christina, RWQCB 9
Blocker, John, County of San Diego, CAC
Boullion, Tom, DWR
Candelaria, Linda, RWQCB 8
Johnson, Leigh, UC Sea Grant Extension
Looker, Richard, RWQCB 2
Matuk, Vivian, CCC
Michael, Pete, RWQCB 9
Miller, Jamie, UC Sea Grant Extension
Moran, Kelly, TDC Environmental
Pap, Ruby, BCDC
Rebecca, Christmann, RWQCB 4
Seligman, Pete, U.S. Navy, SSC-SD
Sniderman, Lisa, BCDC
Yee, Betty, RWQCB 5

These meeting notes contain highlights of discussion topics, items of continuing interest, and pending action items. If you would like more details, you may want to contact the individual(s) associated with that particular item. Highlighted topics are organized in a bulleted form. Italicized text refers to items of continuing interest, which will likely be part of next meeting's agenda. Pending action items are tasks that require immediate attention. These are denoted simply as "Action Item". An attendance/contact information list that contains participants' agency names, email addresses, and telephone numbers is separately attached.

Introductions/Agenda Review:

- Nan Singhasemanon from the Department of Pesticide Regulation (DPR) welcomed the participants and announced that files containing U.S. Navy presentations and journal articles were sent a day before the meeting. A bibliography of copper antifouling paints (AFPs) and aquatic effects of copper was also distributed. Twenty-three individuals participated in the second Copper Sub-Group meeting.

News and Developments:

- Nan provided an update of DPR activities relating to copper AFPs. Nan expects to have a new student assistant hired and integrated by the next meeting. The student will assist with literature searches, procurement of documents, meeting logistics, and possible future fieldwork relating to copper AFPs.
- Nan noted that he had some informal communications with Neal Blossom (American Chemet) who represents several major AFP registrants. They plan to set up a more formal meeting to discuss copper AFP issues. *Nan will keep the group updated on the status of discussions with registrants.*
- The U.S. EPA recently announced plans for a re-evaluation risk assessment that will lead to a re-registration eligibility document (RED) for copper oxide, which is the prevalent active ingredient used in antifouling paints. The RED is on track for 2006. *The group should track this activity*

since we should be able to provide a significant amount of information that may be relevant to the re-evaluation.

- Christina Arias (RWQCB 9) gave a brief update on the SIYB Copper TMDL. She noted that her region has been responding to comments and is considering if the TMDL needs to be adjusted. The next board meeting date of importance is October 13, 2004. At this meeting, the TMDL and implementation plan will be considered for adoption into the Basin Plan. Lesley Dobalian has been out on leave, thus Christina will be the primary staff contact in the mean time.
- Richard Looker (RWQCB 3) announced that he came across copper and other metal data specific to marinas in the San Francisco Bay Area. These were sediment quality data taken over a period of several years for dredging purposes. The data exists only in hardcopy reports at this point and there is a fair volume of material to go through. Currently, Richard is trying to summarize data of interest. *This summary should be available at the next meeting.*
- Linda Candelaria (RWQCB 8) noted that her region's TMDL section is undergoing some re-organizational activities.
- Betty Yee (RWQCB 5) mentioned that her region is developing interests in marinas as possible sources of copper. She recalled that Region 5 had done a tributyltin study in the Sacramento/San Joaquin Delta many years ago. Betty did not think that copper data exist in this report. Nan suggested, however, that the study design and sampling locations could yield potentially useful information. Action Item: Betty will try to locate the report.
- G. Fred Lee (G. Fred Lee & Associates) noted that Deltakeeper has engaged in pathogen monitoring in the Sacramento/San Joaquin Delta. Marinas are occasionally sampled. Fred suggested that Deltakeeper might be able to integrate environmental samples for copper analysis. *Fred volunteered to discuss this possibility with Deltakeeper's Bill Jennings on this possibility.*
- Leigh Johnson (University of California's Sea Grant Extension Program) provided an overview of her program. Sea Grant is a state and federally funded program that provides science-based information on marine resources to a broad spectrum of stakeholders. A particular area of emphasis for the program in recent years has been copper AFPs. Leigh covered some of Sea Grant's activities including:
 - The San Diego Advisory Committee for Environmentally Superior Antifouling Paints (SB 315)
 - San Diego Antifouling Paint Conference in 2000
 - Demonstrations of copper antifouling paint alternatives
 - Educational materials/booklets/video

A video titled "Time for A Change: Alternatives to Copper-Based Boat Bottom Paint" has recently been completed. It can be viewed at the Sea Grant website. To view the video and for more information on Sea Grant, you can go to <http://seagrants.ucdavis.edu/>.

- Based on her experiences in San Diego Bay and the Clean Marinas Program, Leigh Johnson noted that stakeholders who may be potentially affected (i.e., marinas, boatyards, boaters) should be made more aware of copper AFP issues. Moreover, they should be involved in the monitoring and assessment phase, which will help minimize resistance to any potential changes in regulations or use habits. Group discussion ensued on this topic.

- Ruby Pap (BCDC) reported on sediment copper data generated from BCDC's Marina Pilot Study. Ruby noted that the sediment data were above the Effects Range Low (ERL) and ambient San Francisco Bay values but not above the Effects Range Median (ERM) values. Values well above the ERL and "expected" ambient values are notable because they represent an increased probability that adverse biological impacts could result from copper toxicity in the marinas. It should be noted however that observed sediment copper concentrations are not indicative of high ecological risk because they did not exceed ERMs.

The Marina Pilot Study report is currently undergoing review by the technical advisory committee. It should be available for more general review by the end of June 2004.

- G. Fred Lee announced that the proceedings from the New Orleans Symposium on Pollution Prevention from Ships and Shipyards, November 2003 should now be available. Nan contacted Mike Champ of ATRP Corporation in early June and was told that the proceedings should be available in mid-July.

Assessment Activities:

- Nan described the literature search on copper antifouling paints that he had volunteered to do for the group. The goal of this search is to help the workgroup get a clearer assessment of how copper antifouling paints have been scientifically studied. The search was set up to look at two primary pathways to identify studies: scientific journal articles and government agency reports. A bibliography of studies uncovered thus far was provided to the group prior to the meeting.

The journal search returned studies that were accepted into scientific journal going back to the early 1980s. This search revealed that the majority of studies can be classified as either 1) effects of copper on aquatic organisms/community, 2) speciation/complexation of copper in aquatic systems, or 3) fate/transport of copper in aquatic systems. A small subset of these studies focused specifically on AFPs and copper AFPs.

Relevant government agency reports have been identified at a slower rate than the journal search. Moreover, early impressions suggest that there has not been much emphasis in looking at copper antifouling paints as environmentally significant sources of copper or at marinas as areas of concern. Thus far, BCDC, DFG, and the U.S. Navy provided references. The RWQCB 9 (San Diego) has conducted or supported a number of studies although they were not included yet in the bibliography.

- Kelly Moran (TDC Environmental) suggested that the bibliography be as focused as possible to be useful. She noted that she has seen similar lists with hundreds of studies on the effects of copper to aquatic organisms. U.S. EPA Office of Water compiled this list that includes reports on more than 500 toxicity tests. Jim Pendergast is the U.S. EPA contact on this. Moreover, she cautioned that if a bibliography was not comprehensive in its coverage, it could be misleading to those who use it.

Nan acknowledged the observations. He noted that this initial sampling of studies was intended to provide a first look into available information and to help illicit feedback from the group. The list was not intended to be comprehensive of copper AFPs and of copper's environmental effects. *The extent of literature and document searches should be discussed at the next meeting.*

G. Fred Lee also suggested that Charles Delose of U.S. EPA should be contacted for copper references.

- Pete Seligman summarized the U.S. Navy's research on copper AFPs. Materials associated with this topic were sent out prior to the meeting via email. Navy studies tend to fall into the following categories: loading, speciation/bioavailability, or mass balance and fate. Pete made a series of observations based on these studies:
 - Release rates are very dependent on the water temperature, water chemistry, and the amount of biofilm present.
 - Lower toxicity is generally correlated to higher dissolved organic carbon concentration
 - Free copper ion concentration is the main factor in the predicting toxic effects of copper (Richard Looker noted that he has papers on copper ion studies)
- Some discussion took place regarding the different roles that sediment may have in San Diego Bay and San Francisco Bay. Some contended that studies in San Francisco Bay suggested that the sediment is a copper source to the water column. The SIYB TMDL and studies by the Navy in San Diego Bay suggest that sediment is a sink for copper. *This topic of discussion may be continued in a future meeting.*
- Gina Goff suggested that perhaps some studies with copper data would have had to go through CEQA review and therefore be tracked through the CEQAnet database. If so, CEQAnet could be another potential source for copper antifouling paint related studies. The URL for this database is <http://www.ceqanet.ca.gov/queryform.asp>. Action Item: Gina will evaluate this database as a source for relevant studies and report back to the group.
- Christina Arias gave a description of a marina copper survey her region (9) conducted in March 2004. Region 9 staff took surface grab water samples from four different marinas in San Diego Bay. SIYB is not included in this survey. Two or three samples were taken at various spots at each marina. All the samples contained elevated levels (above current California Toxics Rule acute values of 3.1 µg/L) of dissolved copper. An Excel file with more details and results is attached with these meeting notes. Christina said that an additional survey has been planned for the next few months.
- Pete Michael (RWQCB 9) described the San Diego Region Harbor Monitoring Program. The program would employ both ambient monitoring and focused monitoring approaches. Four harbor areas have been targeted: Dana Point Harbor, Oceanside Harbor, Mission Bay, and San Diego Bay. The Del Mar Boat Basin may be added as the fifth monitoring area. Copper will be one of the primary target analytes. Questions to be addressed in the program include:
 - What are the contributions and spatial distributions of inputs of pollutants to harbors in the San Diego Region and how do these inputs vary over the long term?
 - Are the waters in harbors safe for body contact activities?
 - Are fish in the harbors safe to eat?
 - Do the waters and sediments in the harbors sustain healthy biota?
 - What are the long-term trends in water quality for each harbor?
- Tom Boullion (DWR) provided an overview of the Oroville Facilities Relicensing Project and shared a summary of relevant copper data. As part of this project, DWR analyzed water and sediment samples for copper from a number of sites in Lake Oroville between June and September 2003. Three stations each were located at Bidwell Canyon marina and Lime Saddle

marina. Dissolved copper concentrations ranged from 0.5 – 2.0 µg/L and 0.5 – 1.0 µg/L, respectively. The study also included sediment analyses for copper. These results will be provided in next meeting's notes. Additional sampling may take place at Bidwell Canyon marina this year. A draft study plan will be sent with these meeting notes.

Other Items/Next Meeting/Adjourn:

- Nan surveyed the group about meeting frequency, timing and duration. The consensus was to keep meeting every other month, but have the meeting time be from 1:30 – 3:30 p.m.

The next Copper Sub-Group meeting is scheduled for July 8, 2004 @ 1:30-3:30 p.m.

Meeting Notes Prepared by: Nan Singhasemanon, DPR.